

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2

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SUBJECT: National Priorities List Removal Site Evaluation for Standard Chlorine Chemical Company, Inc., Kearny Township, Hudson County, New Jersey

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TO: File

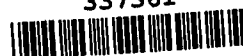
The United States Environmental Protection Agency (EPA) is required to complete a Removal Site Evaluation (RSE) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) at all newly proposed and listed National Priority List (NPL) sites. Standard Chlorine Chemical Company, Inc. (Site) was proposed for placement onto the NPL in April 2003 and subsequently placed on the NPL in September 2007. The Site is one of three adjoining properties, which include the Koppers/Beazer Seaboard Site and the Diamond Shamrock Site, which the New Jersey Department of Environmental Protection (NJDEP) has been addressing in a combined approach.

The Site occupies 25 acres in an industrial area along Belleville Turnpike in Kearny Township, Hudson County, New Jersey. Various forms of chemical manufacturing and/or processing were conducted at the Site from the early 1900s to the 1990s. The Site is bounded by the former Diamond Shamrock site to the north, the Hackensack River to the east, the former Koppers Company, Inc. Seaboard Site to the south, and the Belleville Turnpike to the west. A fence is present around the perimeter of the Site. Most of the Site is either paved or covered by gravel. It is reported that there are no residences within a one-mile radius of the Site and that the closest residence is two miles to the west in Kearny.

The Site, which is located within the New Jersey Meadowlands Commission Hackensack Meadowlands District, lies in a Significant Habitat Complex of the New York Bight Watershed and may be a habitat for designated endangered and/or threatened species. There are at least seven species of fish in the Hackensack River that have management plans through the National Marine Fisheries Service thereby designating the river Essential Fish Habitat. Of the 265 bird species that migrate through the Meadowlands, 63 species nest in the Meadowlands and some use the river as a food source. The Hackensack River is tidally influenced and flows south to Newark Bay. Groundwater flow under the Site is generally towards the Hackensack River and a drainage ditch on the southern end of the Site, which ultimately discharges to the river.

Near the Site, the Hackensack River is used by boaters, jet skiers, canoers, and kayakers for recreational purposes. Fishing and crabbing reportedly takes place in the river from boats off of

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the Site. There are also two popular fishing areas located within 0.5 miles of the Site. Due to PCB and dioxin contamination, Fish Consumption Advisories exist for the Hackensack River for certain fish and blue crab.

Operations at the Site began in 1916 with the White Tar Company and involved the refinement of crude naphthalene. In 1942, the Koppers Company acquired the Site and continued similar manufacturing activities, producing naphthalene products and creosote disinfectants. Standard Chlorine operated at the Site from 1963 to 1993. Operations at the Site included the manufacture of moth crystals and flakes from dichlorobenzene. From 1970 until 1980, Standard Chlorine also separated and stored 1, 2, 4-trichlorobenzene at the site. It is reported that an estimated 2.5 million pounds of orthodichlorobenzene and 1.5 million pounds of 1, 2, 4-trichlorobenzene were produced onsite by Standard Chlorine during its years of operation. Furthermore, an estimated 1,500 pounds per year and 5,000 pounds per year were released in air emissions and wastewater discharges, respectively. Standard Naphthalene Products processed liquid petroleum naphthalene at the Site from 1963 to 1982. In addition, from 1963 until 1987, Chloroben Chemical Corporation operated a batch formulation and blending operation producing various solvents and inorganic chemicals for use in cleaning drains, sewers, and septic tanks. Some of these products were formulated at the Site from 1, 2-dichlorobenzene.

The western two-thirds of the Site contain the former plant manufacturing and storage activities associated with the dichlorobenzene and trichlorobenzene products and the eastern third of the Site contains the former process area associated with the naphthalene refining and trichlorobenzene processing operations, including the lagoon system. Spent sulfuric acid, caustic soda and still bottoms from naphthalene refining operations, and waste generated from trichlorobenzene production were deposited in the unlined lagoon system, which occupies an area of approximately 33,000 square feet and has an average depth of six feet. During the period that Standard Chlorine operated at the Site, an estimated 12,000 pounds per year of process waste were disposed in the lagoon system. The base of the waste material is in contact with the water table. The lagoon system received process wastewaters generated from various processes at the Site. Due to overflows into the adjacent Hackensack River, measures were taken in 1991 to stabilize the embankment adjacent to the river and build up the berm around the lagoon system. The area surrounding the lagoon system and the former process area associated with the naphthalene refining operations and trichlorobenzene processing operations is enclosed by a barbed-wire fence that is lined with black fabric. The fencing extends across the eastern boundary of the Site along the Hackensack River.

An estimated two to ten feet of chromium ore processing residue generated by a former chromite ore smelting facility adjacent to the Site underlie approximately 85% of the Site. Data from 1991 revealed maximum total chromium and hexavalent chromium concentrations in the fill of 34,900 milligrams per kilogram (mg/kg) and 270 mg/kg, respectively. Yellow-colored sediments are evident in the drainage ditch on the southern end of the Site. Sampling has identified the maximum total chromium levels in the on-site sediment and surface water as 16,400 mg/kg and 1,200 milligrams per liter, respectively. This discoloration continues downstream, through the eastern portion of the Site, towards a ditch that flows into the Hackensack River.

In 1985, elevated levels of 2, 3, 7, 8-tetrachlorodibenzo-p-dioxin (TCDD) were identified in the lagoon system and in the adjacent processing area. The highest level of TCDD detected in the lagoon system was 268 micrograms per kilogram. In 2002, TCDD was detected at 96.4 nanograms per kilogram in a sediment sample collected from the Hackensack River adjacent to the Site.

A single wipe sample collected in 1987 from the distillation building, one of the structures located adjacent to the lagoon system, identified the presence of TCDD at 149 nanograms per square meter, approximately 26 times higher than the 1985 NJDEP action level for dioxin concentrations on interior working surfaces. It should be noted that according to the NJDEP in 1988, the analytical results for this wipe sample were originally incorrectly reported as 9.6 ppb.

In 1988, after the elevated dioxin levels were identified in the distillation building, Standard Chlorine proposed removing all friable asbestos from within the structure followed by encapsulation of all interior surfaces with a chemical polymer. The asbestos and other waste material removed from the building was drummed and placed into six containers that are still stored at the Site. In total, approximately 400 drums and seven plastic bags of dioxin-contaminated asbestos were placed in the containers. There is no documentation available to indicate that the encapsulation ever took place within the structure.

In October 1989, an Administrative Consent Order (ACO) was executed between Standard Chlorine and the NJDEP to conduct a remedial investigation and perform a remedial action. In 1990, NJDEP entered into an ACO with Occidental Chemical Corporation and Chemical Land Holdings (whose successor now owns the Diamond Shamrock Site) to address the chromium ore processing residue at numerous sites in the State, including this Site.

Sampling conducted at the Site between 1985 and 2002 has identified the presence of a variety of volatile and semi-volatile organic compounds and heavy metals in on-site and off-site soil, sediment, and surface water. 1, 2, 4-trichlorobenzene has been identified at a maximum concentration of 200,000 mg/kg (20%) in on-site soil and the presence of essentially pure naphthalene has been identified at certain locations in on-site soil and sediment samples.

More recently, as part of a non time-critical removal action, the potentially responsible parties (PRPs) associated with the Site prepared a work plan to implement an Interim Remedial Action (IRA) at the Site. The actions proposed to be undertaken under the approved work plan include: installation of a slurry wall and bulkhead around the Site and the adjacent Diamond Shamrock property; construction and operation of a hydraulic control system consisting of extraction wells, DNAPL recovery wells and a groundwater treatment system; construction and operation of a DNAPL recovery system; dewatering, backfilling and installation of an interim surface cover over the lagoons; removal of river sediments located within 50 feet of the proposed bulkhead; placement of an interim surface cover of coarse aggregate underlain by a geotextile fabric across the entire area; and retrofitting of the existing storm sewer between the Diamond Shamrock Site, installation of a new storm sewer along the alignment of the existing ditch at the Site, and remediation and backfilling of the existing south ditch on the Site.

The PRPs have additional planned activities outside of the IRA. They are currently exploring disposal options for the dioxin-contaminated waste material that is present in the containers stored at the Site. Last year, the PRPs initiated a study of the Hackensack River. Additional work is planned for the river by the PRPs, under NJDEP direction, and is being undertaken in association with suspected contamination from the three adjoining properties. This investigatory work will be handled separately from the Site. Additionally, some of the buildings along the western fence line (outside of the dioxin-contaminated area) have been remediated of lead and asbestos and are scheduled for demolition.

On April 5, 2005 the Agency for Toxic Substances and Disease Registry (ATSDR) and the New Jersey Department of Health and Senior Services prepared a Public Health Assessment (PHA) that indicated there are no completed human exposure pathways. The PHA concluded that the Site represented an indeterminate public health hazard for the consumption of marine life and ambient air pathways due to a lack of available data. It also concluded that there was no apparent public health hazard for trespassers and recreational users of the river since frequent, significant exposures were unlikely. It does not appear that the dioxin analytical results from within the buildings were considered as part of the PHA.

Currently, the former process buildings associated with the generation of dioxin on the eastern portion of the Site remain intact. There are an estimated seven buildings located within the inner fenced area, including the former distillation building that is approximately eight stories tall. The remaining structures are one to three stories tall and are mostly positioned near the northern fence line of the Site. The area is enclosed by a barbed-wire fence lined with black fabric. These buildings are unsecured and have openings on all sides, including the distillation building, which looms over this portion of the Site and the Hackensack River. There are also six aboveground storage tanks within this area that reportedly have been emptied.

Standard Chlorine produced two chemicals in this area of the Site, 1, 2, 4-trichlorobenzene and orthodichlorobenzene, which are considered by EPA to be compounds that are likely to be associated with the formation of dioxin during processing. The company processed an estimated four million pounds of these materials during its years of operations.

Since TCDD was first detected in this portion of the Site in the 1980s, including within one of the buildings, limited sampling and characterization of the process buildings has occurred. A wipe sample reportedly collected from a distillation pot inside one of these buildings revealed elevated levels of TCDD. Apparently, none of the other structures within this eastern area have been sampled. Although a recommendation was made to encapsulate the interior of the former distillation building after the asbestos removal, there are no indications that this action was ever undertaken. As such, the interiors of all of these structures remain uncharacterized.

TCDD is a CERCLA designated hazardous substance as defined in section 101(14) of CERCLA, 42 U.S.C. § 9601(14). The Site is defined as a facility under section 101(9) of CERCLA, 42 U.S.C. § 9601(9). The presence of TCDD in and around the processing buildings on the western portion of the Site constitutes a "release," as defined in Section 101(22) of CERCLA, 42 U.S.C. Section § 9601(22).

Conditions at the Site meet the requirements of Section 300.415(b) of the National Contingency Plan (NCP) for the undertaking of a CERCLA removal action. Factors from the NCP Section 300.415(b)(2) that support conducting a removal action at the site are discussed below.

There is a potential exposure to a hazardous substance by nearby human populations (§300.415(b)(2)(i)) and weather conditions exist that may cause hazardous substances to migrate or be released (§300.415(b)(2)(v)). TCDD has been identified to be present within the inner fenced area of the Site, including the structures, along the Hackensack River. All of the buildings on this portion of the Site are exposed to the elements through open and broken windows and doorways. This provides a route for air currents to flow through the buildings. High winds can result in migration of dust that may be present within the structures. Furthermore, these conditions could potentially result in localized increases in wind velocities between the buildings/rooms through channeling of air currents. A couple of the open buildings stand well above the Site and the river, and provide a mechanism for dust migration through wind currents blowing through those buildings. The intent of the fabric surrounding this area is somewhat negated if there is a source of TCDD present approximately 80 feet above the ground surface from which dust can migrate. The structural integrity of the buildings, including the condition of the roofs and floors, is not known.

Although the PHA does state that the ambient air pathway is indeterminate due to a lack of available data, the document did not include a discussion of the on-site structures and the documented presence of dioxin contamination within at least one of these structures. Persons in the vicinity of these buildings, including on and off-site workers, site visitors, and trespassers could potentially be exposed to dust that may migrate from the many openings in these buildings.

TCDD is one of the most toxic of the chlorinated dioxins. The most noted health effect in people exposed to large amounts of TCDD is chloracne, a severe skin disease with lesions that occur mainly on the face and upper body. Skin rashes, discoloration, and excessive body hair are other noted exposure effects. Several studies suggest that exposure to TCDD increases the risk of several types of cancer in people. The World Health Organization has determined that TCDD is a human carcinogen. The U.S. Department of Health and Human Services has determined that TCDD may reasonably be anticipated to cause cancer. EPA has classified TCDD as a probable human carcinogen (Group B2).

Aside from the actions planned under the IRA, a time-critical CERCLA removal action is warranted to address the TCDD contamination that has been documented to exist since 1985 within at least one of the former processing buildings on the eastern portion of the Site. Actions should be taken in a timely manner to prevent the potential migration of TCDD from these structures until such time that they are fully characterized through a comprehensive, representative sampling investigation that determines the extent of the TCDD contamination. These actions should be taken prior to the planned initiation of the field work for the IRA so as to reduce the potential exposure to workers at the Site and the potential for recontamination of the areas that are going to be addressed under the IRA. This issue can most easily be addressed by closing or sealing all openings in all of the structures on the eastern portion of the Site. Alternatively, the characterization could be completed first however, the planning period that would be needed for such a sampling investigation, coupled with the analytical turnaround time and the cost, would likely delay the mitigative action for a significant period.